

sections was 12.0, 12.3, and 12.3, above the average for the sections. The mean for the state was 12.2 above the average for January; maximum, 75, at Hanging Rock, 12th; minimum, 0.7, at Wauseon, 22d; greatest daily range, 49.3, at Toledo, 13th; least daily range, 3, at Columbus, 27th, New Alexandria, 6th, and Cleveland, 7th.

Precipitation.—The precipitation in the northern, middle, and southern sections was 1.22, 1.77, and 1.98 above the average for the sections. The mean for the state was the heaviest rainfall on record for January, and 1.66 above the average; the greatest monthly, 8.33, at West Milan, is the largest rainfall ever reported from a station of the bureau for January.—*Prof. B. F. Thomas, Columbus, director; Lieut. Charles E. Kilbourne, secretary; C. M. Strong, Corporal, Signal Corps, assistant.*

OREGON.

The month was remarkable for its general low temperature, and western Oregon for its excessive precipitation.

Temperature.—The mean temperature was 5.9 below the normal, the departures ranging from 3.3, at Albany, to 8.8, at The Dalles. Highest monthly mean, 38.9, at Gardiner; lowest monthly mean, 15.8, at North Powder; maximum, 60, at Pendleton, 29th; minimum, —24, at Jordan Valley, 7th.

Precipitation.—The average precipitation was 1.75 above the normal. It was greatly in excess in western Oregon, and slightly deficient in the eastern portion of the state; greatest, 21.86, at Gardiner; least, 1.13, at Heppner. The snowfall was unusually heavy—over six feet falling in Columbia county. Generally in western Oregon, save on the coast, from one to six feet fell.

Wind.—Prevailing direction, southwest.—*Hon. H. E. Hayes, Master State Grange, Oswego, director; B. S. Pague, Sergeant, Signal Corps, assistant.*

PENNSYLVANIA.

Temperature.—The mean temperature for the state was about 11 above the normal, which makes this the warmest January since 1880; greatest local monthly range, 67, at Blue Knob; least local monthly range, 46, at Annville, Catawissa, and Myerstown; greatest daily range, 44, at Chambersburg, 12th; least daily range, 2, at Tipton, 7th; maximum, 77, at Coatsville, 12th; minimum, —2, at Blue Knob, 22d.

Precipitation.—The average was about 0.30 below the normal. The western part of the state received an excess, and the eastern portion a deficiency; greatest monthly, 6.87, at Clarion; least monthly, 1.47, at Bloomfield.

Wind.—Prevailing directions, west and northwest.—*Under direction of the*

Franklin Institute, Philadelphia; T. F. Townsend, Sergeant, Signal Corps, assistant.

SOUTH CAROLINA.

Temperature.—Highest monthly mean, 59.4, at Charleston; lowest monthly mean, 49.7, at Spartanburgh; maximum, 81, at Conway, 8th; minimum, 17, at Spartanburgh, 18th; greatest local monthly range, 62, at Spartanburgh; least local monthly range, 38, at Port Royal.

Precipitation.—Greatest monthly, 2.75, at Walhalla; least monthly, 0.28, at Port Royal.—*Hon. A. P. Butler, Columbia, director; J. W. Cronk, Private, Signal Corps, assistant.*

TENNESSEE.

The month was in many respects rather a phenomenal one. The high temperature during the first half, the mild weather during almost the entire month, the abnormal rainfall, the prevailing high winds, and the large percentage of cloudiness, all combined to render it a remarkable and very disagreeable month.

Temperature.—The mean temperature was 13 above the average for the past seven years; highest monthly mean, 53.4, at Cog Hill; lowest monthly mean, 46.1, at Rugby; maximum, 79, at Woodstock, 11th, and at Memphis, 12th; minimum, 16, at Rugby, 7th; this was the highest January minimum during the past seven years.

Precipitation.—Greatest monthly, 10.70, at Bolivar; least monthly, 2.90, at Greeneville.

Wind.—Prevailing direction, south.—*J. D. Plunket, M. D., Nashville, director; H. C. Bate, Signal Corps, assistant.*

TEXAS.

Temperature.—The abnormally high temperature of the two preceding months continued during January; a cold wave passed over the state during the 16th. The average temperature was considerably above the normal; the greatest departure was near the coast, where it was 12; from the coast it gradually decreased northward to the Panhandle, where it was 8. The mean temperature ranged from 38, at Hartley, to 69, at Brownsville; maximum, 84, at College Station, 29th, and at Gallinas, 81st; minimum, 2, at Hartley, 21st.

Precipitation.—The precipitation varied from 2.00 to 10.00 east of the ninety-eighth meridian, which is slightly in excess of the normal; between the ninety-eighth and one hundredth meridians the amount was less than fifty per cent. of the January normal, while west of this it ranged from 0.50 to 1.00, which is slightly in excess of the normal.—*D. D. Bryan, Galveston, director; I. M. Cline, Sergeant, Signal Corps, assistant.*

NOTES AND EXTRACTS.

COMPARISON OF ANEMOMETERS.

[By Assistant Professor C. F. MARVIN.]

In the MONTHLY WEATHER REVIEW for February, 1889, a brief account was given of experiments made upon a large whirling apparatus to determine the proper formula to be used with the Signal Service anemometer in order to accurately compute wind velocity.

With the very satisfactory results thus obtained from the whirling machine experiments as a basis for subsequent comparisons, it has been found that anemometers of different dimensions when exposed to the same wind do not give even approximately the same wind velocity. A brief study of this question was made about a year ago and the conclusion reached that anemometers having cups and arms of relatively considerable weight did not follow closely the sudden fluctuations of ordinary winds, and, in consequence, had a tendency to indicate too high a wind movement. More extended observation, involving the comparison of a much greater variety of anemometers, has shown that this peculiarity is not confined to heavy cups alone, but is exhibited by others as well.

Starting with accurate whirling machine experiments, the results obtained show that of anemometers exposed to the same wind those whose cups and arms are of slender proportions indicate a higher velocity than that shown by anemometers whose cups and arms are of compact proportions. The terms slender and compact, in this connection, refer to the relation existing between the diameter of the cups and the length of the arms. Anemometers whose arms from the axis to the centres of the cups are nearly two or more times the diameter of the cups are considered as being of slender proportions, while those whose arms have a length only a little greater or even less than the diameter of the cups are said to be of compact proportions.

While the differences in the velocities indicated by the various anemometers may arise from the circumstance that on the whirling machine the anemometer is in motion while in the open air the air is, itself, in motion, yet such is not believed to be the case, but rather that the result is brought about by the gusty and violently fluctuating character of open air winds.

From a study of many detailed facts derived not only from open air comparisons, but also from whirling machine experiments, it is considered that, of the two classes, the anemometer of compact proportions indicates more nearly the actual wind movement. As the regular Signal Service anemometer is of comparatively slender proportions, it is therefore necessary to change, to some extent, the constants found from the whirling machine experiments, so that the indications of the anemometer in the gusty and fluctuating winds of the open air may be more nearly correct.

Notwithstanding that comparisons have been in progress for several weeks, yet there are so many disturbing elements entering into accurate investigation of this kind and the more or less complete elimination of which is of importance that, being obliged, also, to depend upon the weather for the range

of velocities desired, it is found the data is still insufficient in some respects. However, the observations have been reduced and the constants of the Signal Service anemometer computed.

In attempting to compute corrections that may be used to reduce the wind velocities heretofore observed by the Signal Service to more accurate values, one is at once confronted by the most serious difficulties in that the highest velocities at which accurate experiments have been made are far below many of the observed velocities. Owing, moreover, to the very imperfect knowledge of a correct dynamic theory for the Robinson anemometer, the empirical formulae ordinarily used cannot be depended upon for correct values for velocities beyond the experimental values. This fact is very evident from an inspection of the results given in the table below, which contains values deduced from different formulae, commonly used by meteorologists in this connection. The formulae used are as follows, and apply to the Signal Service anemometer having cups 4 inches in diameter on arms 6.72 inches long:

- $V = 3v$. Robinson formula.
- $V = .225 + 3.143v - .0362v$ (whirling machine).
- $V = .263 + 2.953v - .0407v$, (b) reduced to open air.
- $V = .466 + 2.525v$.
- $\log V = .509 - .9012 \log v$.

V is velocity of wind in miles per hour; v is velocity of centres of cups in miles per hour.

Velocity of wind, in miles per hour, as determined by various formulae.

| (a) Robinson factor. | (b) Quadratic (whirling machine). | (c) Quadratic (open air). | b + c. | (d) Right-line (open air). | (e) Logarithmic (open air). | Corrections. | | |
|----------------------|-----------------------------------|---------------------------|--------|----------------------------|-----------------------------|--------------|---------|---------|
| | | | | | | d - a. | e - a. | c - a. |
| 2.5 | 2.82 | 2.72 | 1.04 | 2.57 | 2.74 | + .07 | + 0.24 | + 0.22 |
| 5.0 | 5.36 | 5.07 | 1.06 | 4.68 | 5.12 | — .32 | + 0.12 | + 0.07 |
| 10.0 | 10.30 | 9.65 | 1.07 | 8.88 | 9.56 | — 1.12 | — 0.44 | — 0.35 |
| 15.0 | 15.04 | 14.01 | 1.07 | 13.09 | 13.77 | — 1.91 | — 1.23 | — 0.99 |
| 20.0 | 19.57 | 18.14 | 1.08 | 17.31 | 17.85 | — 2.69 | — 2.15 | — 1.86 |
| 25.0 | 23.90 | 22.05 | 1.08 | 21.51 | 21.82 | — 3.49 | — 3.18 | — 2.95 |
| 30.0 | 28.04 | 25.72 | 1.09 | 25.71 | 25.72 | — 4.29 | — 4.28 | — 4.28 |
| 35.0 | 31.97 | 29.17 | 1.10 | 29.93 | 29.55 | — 5.07 | — 5.45 | — 5.83 |
| 40.0 | 35.70 | 32.40 | 1.10 | 34.14 | 33.33 | — 5.86 | — 6.67 | — 7.60 |
| 50.0 | 42.56 | 38.18 | 1.11 | 42.56 | 40.76 | — 7.44 | — 9.24 | — 11.82 |
| 60.0 | 48.62 | 43.04 | 1.13 | 50.98 | 48.03 | — 9.02 | — 11.97 | — 16.96 |
| 70.0 | 53.87 | 47.00 | 1.15 | 59.39 | 55.19 | — 10.61 | — 14.81 | — 23.00 |
| 90.0 | 61.97 | 52.21 | 1.19 | 76.23 | 69.22 | — 13.77 | — 20.78 | — 37.79 |

* Highest velocity experimentally observed.

The first column gives velocities computed by the long-used "Robinson factor" (3). The next column, *b*, contains corresponding values computed by a quadratic equation obtained directly from whirling machine experiments. Column *c* gives the results from this equation when adjusted to open air conditions. The column headed *b ÷ c* shows how much the original values from the whirling machine experiments have been changed to adjust to open air conditions. The next two columns contain results by different equations, all purely empirical. The last three columns contain corrections in miles per hour by which wind velocities computed to the Robinson factor can be reduced to those given by the other equations.

No experiments have been made beyond thirty-two miles per hour, and none of the formulæ can be safely depended upon for more than forty miles per hour.

Formula *c* fits the experiments, so far as they go, far more closely than any other, but its mathematical form is such that values by it at points beyond the experiments are extremely doubtful.

Though formula *e* does not fit experiments very well, values at high velocities are possibly more nearly correct than by the other formulæ.

As by far the greater majority of wind velocities recorded throughout the United States are below thirty-five miles per hour, it is believed that formula *c* will give a very close approximation to correct wind velocities, and the last column contains the corrections, in miles per hour, to be applied to past records to reduce the velocities computed by the Robinson factor to the more correct values. If velocities beyond thirty-five miles per hour are corrected at all, it is believed better to use the corrections in the next to the last column. It is not believed advisable to apply corrections to observed velocities higher than forty miles per hour.

Formula *c* is recommended for the Signal Service anemometer for all velocities up to thirty-five miles per hour.

I have already pointed out a noticeable error in computing mean wind velocities by such a formula as *c* when the observations embrace a great range of velocities. For example, if the total movement of the anemometer during twenty-four hours be used to reduce a mean hourly velocity the result will, unless the wind velocity has been almost constant, be noticeably different from that obtained by taking the mean of the twenty-four hourly velocity. This arises from the fact that in the twenty-four hour mean the square of the mean velocity of the centres of the cups is used in the formula, while in the case of the mean twenty-four hourly velocities the mean of the square of the cup velocities is used. It is scarcely necessary to say that the latter is the more correct.

Much valuable information as to the action of the anemometer, not only at high velocities, but also when subjected to violently fluctuating winds, is yet to be gained from carefully conducted whirling machine experiments, provided they can be carried on under favorable conditions such as obtained in those already made at low velocities.

Meteorological record of Army post surgeons, voluntary, and other co-operating observers, January, 1890.

| Stations. | Temperature. (Fahrenheit.) | | | Precip'n. | | Stations. | Temperature. (Fahrenheit.) | | | Precip'n. | |
|------------------------|-------------------------------|------|-------|-----------|--|-----------------------|-------------------------------|------|-------|-----------|-------|
| | Max. | Min. | Mean. | | | | Max. | Min. | Mean. | | |
| <i>Alabama.</i> | 0 | 0 | 0 | Ins. | | <i>Arkansas.</i> | 0 | 0 | 0 | Ins. | |
| Bermuda *†..... | 80 | 26 | 59.0 | 0.15 | | Arkansas City †..... | | | | 7.12 | |
| Butler..... | 76 | 26 | 58.0 | 2.19 | | Camden †..... | | | | 7.57 | |
| Citronelle..... | 84 | 26 | 63.1 | 1.51 | | Conway..... | 77 | 22 | 49.8 | 6.13 | |
| Columbiana †..... | 74 | 25 | 56.6 | 4.41 | | Dardanelle..... | | | | 6.49 | |
| Decatur (1) †..... | | | | 3.28 | | Forrest City †..... | 78 | 24 | 53.4 | 7.65 | |
| Decatur (2) †..... | | | | 4.47 | | Fulton..... | | | | 7.61 | |
| Double Springs *..... | 74 | 22 | 53.8 | 5.75 | | Harrisburgh..... | 75 | 18 | 48.0 | 7.22 | |
| Elkmount..... | 75 | 17 | 50.2 | 3.60 | | Hober..... | 76 | 19 | 47.7 | 5.71 | |
| Evergreen..... | | | | 1.07 | | Helena (1) †..... | | | | 10.13 | |
| Fayette C. H. †..... | 73 | 24 | 52.5 | 4.60 | | Hot Springs..... | 75 | 18 | 51.3 | 6.39 | |
| Gadsden †..... | 76 | 27 | 51.0 | | | Huntington..... | 73 | 28 | 52.5 | 4.20 | |
| Greensborough †..... | 76 | 31 | 57.0 | 3.42 | | Lend Hill..... | 81 | 11 | 45.6 | 7.37 | |
| Livingston (1)..... | 78 | 27 | 57.2 | 1.67 | | Little Rock B'ks..... | 77 | 21 | 51.5 | 9.72 | |
| Mt. Vernon B'ks..... | 81 | 25 | 61.6 | 1.68 | | Lonoke..... | 76 | 23 | 53.7 | 8.25 | |
| Pine Apple..... | | | | 1.37 | | Newport (1) †..... | | | | 8.24 | |
| Tusculum (1)..... | 75 | 23 | 51.4 | 6.33 | | Ozone †..... | 69 | 13 | 45.2 | 9.46 | |
| Valley Head †..... | 72 | 22 | 49.6 | 3.91 | | Pine Bluff †..... | 76 | 22 | 54.7 | 5.08 | |
| Wiggins..... | 81 | 26 | 60.9 | 1.07 | | Stuttgart †..... | 78 | 20 | 50.7 | 7.64 | |
| <i>Alaska.</i> | | | | | | Texarkana †..... | 80 | 20 | 54.7 | 4.35 | |
| Juneau..... | 38 | -4 | 17.4 | 3.22 | | Washington †..... | 78 | 21 | 56.2 | 9.21 | |
| <i>Arizona.</i> | | | | | | Winslow †..... | 66 | 10 | 39.9 | 5.26 | |
| Ash Springs..... | 59 | 26 | 44.0 | 2.13 | | <i>California.</i> | | | | | |
| Cooley's Spring †..... | | | | 3.20 | | Alcatraz Island..... | 56 | 33 | 44.5 | 10.66 | |
| Dragoon..... | | | | 2.11 | | Anderson..... | 50 | 14 | 38.2 | 10.56 | |
| Doa Cabezas..... | | | | 1.28 | | Angel Island..... | 58 | 29 | 44.1 | 6.95 | |
| Fort Apache..... | 60 | 9 | 37.9 | 2.17 | | Benicia Barracks..... | 60 | 27 | 42.8 | 7.35 | |
| Fort Bowie..... | 68 | 19 | 45.0 | 0.78 | | Berkeley..... | 58 | 31 | 43.7 | 11.16 | |
| Fort Grant..... | 73 | 19 | 45.4 | 1.58 | | Centerville *..... | 67 | 34 | 48.3 | 7.18 | |
| Fort Huachuca..... | 62 | 11 | 42.1 | 1.50 | | Colegrove..... | | | | 6.75 | |
| Fort Lowell..... | 86 | 20 | 49.8 | 2.09 | | Delta..... | 56 | -4 | 28.3 | 0.80 | |
| Fort McDowell..... | 82 | 24 | 48.9 | 0.87 | | Evergreen..... | | | | 6.30 | |
| Fort Mojave..... | 74 | 26 | 44.0 | 2.80 | | Ferndale *..... | | | | 41.0 | 22.17 |
| Fort Verde..... | 71 | 17 | 41.0 | 1.37 | | Fort Bidwell..... | 42 | -20 | 18.9 | 7.45 | |
| Gila Bend *..... | 68 | 34 | 50.6 | 0.00 | | Fort Gaston..... | 52 | 27 | 38.2 | 18.29 | |
| Holbrook..... | 66 | 23 | 33.7 | 0.66 | | Fort Mason..... | 63 | 35 | 45.5 | 8.20 | |
| Lochiel *..... | 75 | 12 | 44.3 | 3.06 | | Georgetown..... | 50 | 18 | 33.6 | 10.90 | |
| Natural Bridge..... | | | | 4.00 | | Grass Valley..... | | | | 18.01 | |
| Sachse's Ranch..... | | | | 1.54 | | Hydesville †..... | 53 | 24 | 39.4 | 17.31 | |
| San Carlos..... | 78 | 16 | 46.5 | 2.10 | | Iowa Hill *..... | 50 | 22 | 34.9 | 20.87 | |
| Strawberry †..... | | | | 3.35 | | Jolon..... | 50 | 22 | 39.4 | 6.58 | |
| Teviston..... | | | | 3.80 | | Juliant..... | 66 | 24 | 41.6 | 6.12 | |
| Tucson (1) †..... | 76 | 24 | 47.8 | 1.27 | | La Grange *..... | 58 | 27 | 42.3 | 5.17 | |
| Walnut Ranch..... | | | | 1.77 | | Lewis Creek..... | 66 | 26 | 42.0 | 5.02 | |
| Willow Springs..... | | | | 2.98 | | Los Banos *..... | 62 | 28 | 44.4 | 3.11 | |

Meteorological record of voluntary observers, &c.—Continued.

| Stations. | Temperature. (Fahrenheit.) | | | Precip'n. | | Stations. | Temperature. (Fahrenheit.) | | | Precip'n. | |
|---------------------------|-------------------------------|------|-------|-----------|--|--------------------------|-------------------------------|------|-------|-----------|--|
| | Max. | Min. | Mean. | | | | Max. | Min. | Mean. | | |
| <i>California—Cont'd.</i> | 0 | 0 | 0 | Ins. | | <i>Florida.</i> | 0 | 0 | 0 | Ins. | |
| Los Gatos (2)..... | | | | 16.45 | | Altamonte Springs †..... | 87 | 47 | 67.0 | 0.36 | |
| Mendocino..... | | | | 12.41 | | Alva †..... | 87 | 50 | 66.6 | 0.24 | |
| National City †..... | 69 | 30 | 49.8 | 2.22 | | Archer †..... | 86 | 37 | 65.3 | 0.18 | |
| Oakland (1) *..... | 57 | 31 | 44.4 | 10.22 | | Fort Barrancas..... | 79 | 36 | 63.8 | 0.69 | |
| Pasadena..... | 68 | 29 | 45.7 | 6.83 | | Fort Meade *..... | 81 | 46 | 62.4 | | |
| Presidio of San F..... | 60 | 30 | 46.3 | 11.06 | | Lake City †..... | 89 | 37 | 65.1 | 0.08 | |
| Riverside *..... | 66 | 26 | 43.0 | 4.28 | | Madison †..... | 75 | 40 | 62.7 | 0.59 | |
| Sacramento (1)..... | 58 | 21 | 38.4 | 7.44 | | Manatee †..... | 91 | 44 | 68.0 | 0.73 | |
| Salinas (1) *..... | 58d | 309 | 45.2 | 6.19 | | Matanzas *..... | 79 | 51 | 64.8 | 0.88 | |
| San Diego B'ks..... | 65 | 34 | 51.2 | 1.98 | | Merritt's Island †..... | 81 | 56 | 69.6 | 0.56 | |
| Santa Barbara (1)..... | 64 | 34 | 48.4 | 5.32 | | Ocala *..... | 81 | 45 | 63.4 | 0.11 | |
| Santa Clara *..... | 62 | 29 | 45.6 | 7.02 | | St. Francis B'ks..... | 79 | 43 | 64.6 | 0.32 | |
| Santa Maria..... | 62 | 29 | 45.6 | 7.02 | | Tallahassee..... | 79 | 34 | 60.1 | 0.78 | |
| Steales..... | 58 | 32 | 45.7 | 6.45 | | Villa City †..... | 83 | 52 | 66.9 | 0.26 | |
| Stockton (1)..... | | | | 4.99 | | <i>Georgia.</i> | | | | | |
| Susanville * †..... | 47 | -8 | 23.9 | 8.72 | | Allapaha..... | 79 | 38 | 60.5 | 0.97 | |
| Upper Mattole..... | 60 | 27 | 43.8 | 33.40 | | Andersonville A..... | 98 | 29 | 63.5 | 2.90 | |
| Vacaville (1) *..... | 59 | 30 | 42.8 | 12.37 | | Athens (1)..... | 72 | 27 | 51.4 | 2.56 | |
| Walnut Creek..... | 59 | 27 | 44.2 | 7.77 | | Athens (2) †..... | 72 | 26 | 51.3 | 2.52 | |
| Willow (1) †..... | 58 | 26 | 41.1 | 3.53 | | Camilla *..... | 83 | 34 | 62.4 | 0.39 | |
| <i>Colorado.</i> | | | | | | Diamond *..... | | 25 | 50.7 | 4.55 | |
| Agate..... | 62 | -2 | 29.0 | 0.40 | | Forsyth *..... | 80 | 30 | 55.9 | 2.87 | |
| Apishapa..... | 68 | 8 | 27.5 | 0.20 | | Fort McPherson..... | 75 | 26 | 52.0 | 3.41 | |
| Arroyo..... | | | | 0.08 | | Gillsville *..... | 74 | 30 | 53.2 | 2.55 | |
| Aspen..... | 51 | -11 | 19.1 | 1.90 | | Hephzibah *..... | 74 | 32 | 56.2 | 0.09 | |
| Bennet..... | 72 | -18 | 35.2 | 0.70 | | Jesup †..... | | | | T. | |
| Brokenridge..... | 84 | -26 | 22.7 | 1.05 | | Marietta †..... | 73 | 24 | 49.9 | 3.25 | |
| Brush..... | | | | 0.30 | | Milledgeville * †..... | 77 | 28 | 53.5 | 1.75 | |
| Byers..... | 73 | 1 | 27.5 | 0.35 | | Millen..... | 82 | 26 | 55.0 | 0.97 | |
| Canon City..... | 69 | -1 | 33.4 | 0.46 | | Monticello *..... | | 30 | 51.1 | 1.97 | |
| Cheyenne Wells..... | 60 | 0 | 27.5 | 0.10 | | Point Peter *..... | | 26 | 50.4 | 2.45 | |
| Climax..... | 40 | -18 | 11.4 | 1.03 | | Quitman (1) *..... | 79 | 36 | 60.5 | 0.42 | |
| Deer Trail..... | 60 | -10 | 23.3 | 0.30 | | Woolley's Ford *..... | 72 | 26 | 49.0 | 0.29 | |
| Delta †..... | 56 | -4 | 28.0 | 0.80 | | <i>Idaho.</i> | | | | | |
| Denver (Jes. Col.)..... | 70 | -5 | 27.9 | 0.13 | | Boise Barracks..... | 51 | -12 | 21.5 | 1.70 | |
| Durango..... | | | | 1.90 | | Era †..... | 40 | -22 | 11.9 | 6.56 | |
| Eagle Farm..... | | | | 0.20 | | Fort Sherman..... | 45 | -19 | 18.8 | 4.81 | |
| Emma..... | | | | 0.93 | | Lewiston..... | 58 | 9 | 25.3 | 0.42 | |
| First View..... | 70 | 0 | 28.5 | 0.05 | | Soda Springs †..... | 41 | -31 | 12.4 | 3.05 | |
| Fort Collins..... | 66 | -13 | 24.7 | 0.13 | | <i>Illinois.</i> | | | | | |
| Fort Crawford..... | 59 | -6 | 27.6 | 0.56 | | Atwood..... | 66 | 0 | 31.9 | 14.62 | |
| Fort Lewis..... | 51 | -17 | 20.4 | 5.20 | | Aurora (1) †..... | 60 | -8 | 27.9 | | |
| Fort Logan..... | 73 | -7 | 28.6 | 0.13 | | Aurora (2) *..... | 61 | -7 | 29.6 | 3.24 | |
| Fraser * †..... | -27 | 7.2 | 1.40 | | | Beardstown..... | | | | 2.75 | |
| Fruita..... | 52 | -17 | 20.8 | 0.87 | | Benson..... | 63 | -2 | 32.8 | 4.35 | |
| Georgetown..... | 51 | -3 | 26.2 | 0.35 | | Belvidere..... | 46 | -8 | 26.8 | 2.91 | |
| Glenwood Springs..... | 55 | -8 | 24.2 | 0.89 | | Centralia..... | 70 | 7 | 40.0 | 10.38 | |
| Greeley..... | 65 | 1 | 22.8 | 0.10 | | Collinsville..... | 70 | 6 | 38.7 | 6.00 | |
| Gunnison..... | 55 | -39 | 4.5 | | | Dwight..... | 62 | -8 | 31.7 | 4.59 | |
| Hardin..... | | | | 0.18 | | East Peoria..... | 66 | 0 | 35.4 | 3.12 | |
| Hugo..... | 70 | 10 | 29.3 | | | Flora..... | 72 | 5 | 39.5 | 10.06 | |
| Husted..... | 65 | -7 | 28.1 | 0.09 | | Fort Sheridan..... | 58 | -7 | 29.3 | 2.68 | |
| Idaho Springs..... | 55 | -9 | 26.5 | 0.30 | | Gibson City *..... | 60 | -4 | 32.4 | 6.00 | |
| Kit Carson..... | 68 | 0 | 26.6 | 0.05 | | Golconda..... | 72 | 16 | 43.2 | 7.35 | |
| Lamar..... | 75 | -2 | 33.0 | 0.20 | | Grand Tower †..... | | | | 9.01 | |
| Las Animas..... | 73 | -4 | 30.0 | 0.20 | | Greenville..... | 73 | 3 | 37.4 | 9.61 | |
| Lendville..... | 45 | -10 | 14.8 | 0.42 | | Griggsville *..... | 62 | -2 | 31.8 | 3.31 | |
| Longmont..... | 63 | -13 | 24.1 | 0.35 | | Hennepin..... | 63 | -5 | 25.6 | 2.05 | |
| Magnolia..... | 59 | -3 | 27.4 | 0.50 | | Irishtown..... | | | | 8.41 | |
| Monte Vista..... | 55 | -20 | 18.0 | 0.00 | | Jordans Grove *..... | 74 | 9 | 39.5 | 8.12 | |
| Moraine..... | 48 | -3 | 24.7 | 0.81 | | Lacon..... | 59 | -3 | 30.9 | 2.77 | |
| Palmer Lake..... | 58 | -4 | 28.4 | 0.20 | | Lake Forest..... | 60 | -7 | 28.3 | 2.76 | |
| Parachute..... | | | | 0.84 | | Lanark *..... | 48 | -11 | 23.0 | 2.76 | |
| Ranch near Como..... | 41 | -11 | 15.2 | 0.34 | | Louisville..... | 72 | 4 | 37.9 | 8.30 | |
| River Bend..... | 73 | -2 | 30.2 | | | Martinsville..... | 70 | 7 | 39.7 | 6.19 | |
| Rocky Ford..... | -10 | 21.4 | 0.34 | | | Mascoutah *..... | 74 | 4 | 38.4 | 10.00 | |
| San Luis Ex. Sta..... | 52 | -16 | 21.1 | 0.10 | | McLeansborough..... | 74 | 8 | 42.2 | 7.12 | |
| Sedgwick..... | | | | 0.05 | | Mount Carmel †..... | | | | 8.77 | |
| T. S. Ranch..... | 54 | -4 | 27.8 | 0.55 | | Olney..... | 70 | 9 | 39.5 | 7.21 | |
| Thon..... | 62 | -4 | 27.4 | 0.07 | | Oswego *..... | 56 | -6 | 28.3 | 2.44 | |
| Vilas..... | | | | 0.33 | | Ottawa †..... | 59 | -2 | 32.2 | 2.59 | |